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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,528	03/31/2004	Tom E. Pearson	ITL.1105US (P18745)	6903
21906	7590	03/08/2006	EXAMINER	
TROP PRUNER & HU, PC 8554 KATY FREEWAY SUITE 100 HOUSTON, TX 77024			GIRARDI, VANESSA MARY	
			ART UNIT	PAPER NUMBER
			2833	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/814,528

Applicant(s)

PEARSON ET AL.

Examiner

Vanessa Girardi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### DETAILED ACTION

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5, 8-14, 17-21, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al. (US 6,877,990 B2) in view of Ciabrone (US 5,626,280) and Edwin et al. (US 5,262,594).

Liao et al. shows an integrated circuit socket 1 comprising: a socket housing 21; a hinged cover 25 secured to the housing; and a cap 3 removably secured to the cover (Col. 4, lines 13, 14).

However Liao et al. does not show the cap 3 as infrared transmissive.

Ciabrone shows a soldering tool 10 made of a material that is transparent to infrared radiation (Col. 1, lines 8-9) and is easily formed into various shapes and sizes depending on the soldering task (Col. 3, lines 5-9).

Edwin et al. teaches the adverse effects an infrared reflow oven has on a printed circuit board during soldering (Col. 2, lines 22-34). Edwin et al. further explains the proportions of heat generated by the IR oven and the objective to minimize the amount of time a component is exposed to such heat (Col. 6, lines 8-17).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cap of Liao using the infrared material taught by Ciabrone thereby producing an integrated circuit socket suitable for automated production processes

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which "sees" 100% of the heat generated by the IR oven, thereby eliminating the need to apply excess heat or time wherein the end product would be less susceptible to the degradation explained by Edwin et al. thus producing an overall more reliable integrated circuit socket while minimizing manufacturing processes.

With respect to claim 2; Liao et al. shows the cap 3 includes a plurality of openings 302 and 303 to allow the passage of heated air (Col. 4, lines 6, 7).

With respect to claim 3; Liao et al. shows spring catches 307 and 308 on opposed ends of the cap to removeably secure the cap to the cover.

With respect to claims 4 and 5; Liao et al. as modified by Ciabrone and Edwin et al. has been discussed above.

However Liao et al. does not show the cap 3 as transmissive to infrared radiation.

Ciabrone further teaches the soldering tool 10 material is *transparent* to infrared radiation (Col. 1, lines 41, 42).

Edwin et al. teaches the adverse effects an infrared reflow oven has on a printed circuit board during soldering (Col. 2, lines 22-34). Edwin et al. further explains the proportions of heat generated by the IR oven and the objective to minimize the amount of time a component is exposed to such heat (Col. 6, lines 8-17).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify to the cap of Liao et al. with the material taught by Ciabrone permitting transmission of *at least* 80% and 95% of incident infrared radiation thereby eliminating the need to apply excess heat or time thus potentially avoiding the degradation explained by Edwin et al. thus producing an overall more reliable integrated circuit socket while minimizing manufacturing processes.

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With respect to claim 8; Liao et al. shows the cap 3 includes standoffs 309 which space the cap from the cover.

With respect to claim 9; Liao et al. shows the cap 3 has a curved lower surface 309.

With respect to claim 10; Liao et al. shows the cap 3 includes at least two apertures 305 and downwardly extending prongs 308 extending away from the apertures to reflect incident radiation passing through the apertures.

With respect to claim 11; Liao et al. as modified by Ciabrone and Edwin et al. has been discussed above. Liao et al. further shows a cap 3 for an integrated circuit socket comprising: a body 30 having apertures 302, 303, and tabs 307, 308 coupled to the body to removeably secure the body to an integrated circuit socket.

However Liao et al. does not show the body formed of a material that is infrared transmissive.

Ciabrone further teaches the soldering tool 10 material is transparent to infrared radiation (Col. 1, lines 41, 42).

Edwin et al. teaches the adverse affects an infrared reflow oven has on a printed circuit board during soldering (Col. 2, lines 22-34). Edwin et al. further explains the proportions of heat generated by the IR oven and the objective to minimize the amount of time a component is exposed to such heat (Col. 6, lines 8-17).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cap of Liao using the infrared material taught by Ciabrone thereby producing an integrated circuit socket suitable for automated production processes which "sees" 100% of the heat generated by the IR oven, thereby eliminating the need to apply excess heat or time wherein the end product would be less susceptible to the degradation

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explained by Edwin et al. thus producing an overall more reliable integrated circuit socket while minimizing manufacturing processes.

With respect to claim 12; Liao et al. shows tabs **307**, **308** include spring catches on opposed ends of the cap to removeably secure the cap to the socket.

With respect to claims 13 and 14; Liao et al. as modified by Ciambone and Edwin et al. has been discussed above.

However Liao et al. does not show the cap **3** as transmissive to infrared radiation.

Ciambone teaches the soldering tool **10** material is *transparent* to infrared radiation (Col. 1, lines 41, 42).

Edwin et al. teaches the adverse affects an infrared reflow oven has on a printed circuit board during soldering (Col. 2, lines 22-34). Edwin et al. further explains the proportions of heat generated by the IR oven and the objective to minimize the amount of time a component is exposed to such heat (Col. 6, lines 8-17).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made a modification to the cap of Liao et al. with the material taught by Ciambone would permit transmission of *at least* 80% and 95% of incident infrared radiation providing the advantages discussed above.

With respect to claim 17; Liao et al. shows the cap **3** includes standoffs **309** which space the cap from the cover.

With respect to claim 18; Liao et al. shows the cap **3** has a curved lower surface **309**.

With respect to claim 19; Liao et al. shows the cap **3** includes at least two apertures **305** and downwardly extending prongs **308** extending away from the apertures to reflect incident radiation passing through the apertures.

With respect to claim 20; Liao et al. shows the cap **3** includes guides **309** and **305** to guide the cap into alignment with the socket.

With respect to claims 21 and 22; Liao et al. as modified by Ciambrone and Edwin et al. has been discussed above. Liao et al. shows a method comprising: securing a cap to an integrated circuit socket (Col. 3, lines 58-67) and (Col. 4, lines 1, 2); and surface mounting the socket to a printed circuit board (Col. 4, lines 6, 7).

However Liao et al. does not show cap **3** as transmissive to infrared radiation nor does Liao et al. disclose the surface mounting method as exposing the cap and the socket to infrared energy.

Ciambrone teaches the soldering tool **10** material is transparent to infrared radiation (Col. 1, lines 41, 42) specifically for use in an infrared reflow soldering machine (Col. 3, lines 20-23).

Edwin et al. teaches the adverse affects an infrared reflow oven has on a printed circuit board during soldering (Col. 2, lines 22-34). Edwin et al. further explains the proportions of heat generated by the IR oven and the objective to minimize the amount of time a component is exposed to such heat (Col. 6, lines 8-17).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cap of Liao using the infrared material taught by Ciambrone thereby producing an integrated circuit socket suitable for automated production processes which "sees" 100% of the heat generated by the IR oven, thereby eliminating the need to apply excess heat or time wherein the end product would be less susceptible to the degradation

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explained by Edwin et al. thus producing an overall more reliable integrated circuit socket while minimizing manufacturing processes.

With respect to claim 23; Liao et al. shows the cap **3** includes a plurality of openings **302** and **303** to allow the passage of heated air (Col. 4, lines 6, 7).

With respect to claim 25; Liao et al. as modified by Ciabrone and Edwin et al. has been discussed above.

However Liao et al. does not show the cap **3** as transmissive to infrared radiation.

However Liao et al. does not show the cap **3** as infrared transmissive.

Ciabrone shows a soldering tool **10** made of a material that is transparent to infrared radiation (Col. 1, lines 8-9) and is easily formed into various shapes and sizes depending on the soldering task (Col. 3, lines 5-9).

Edwin et al. teaches the adverse affects an infrared reflow oven has on a printed circuit board during soldering (Col. 2, lines 22-34). Edwin et al. further explains the proportions of heat generated by the IR oven and the objective to minimize the amount of time a component is exposed to such heat (Col. 6, lines 8-17).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cap of Liao using the infrared material taught by Ciabrone thereby producing an integrated circuit socket suitable for automated production processes which "sees" 100% of the heat generated by the IR oven, thereby eliminating the need to apply excess heat or time wherein the end product would be less susceptible to the degradation explained by Edwin et al. thus producing an overall more reliable integrated circuit socket while minimizing manufacturing processes.



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2. Claims 6, 7, 15, 16 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al. (US 6,877,990 B2) modified by Ciambrone (US 5,626,280) for the motives found in Edwin et al. (5,262,594) as applied to claims 1, 11 and 21 above, and further in view of Yu (US 6,626,691). Liao et al. as modified by Ciambrone and Edwin et al. has been discussed above.

With respect to claims 6 and 15; Liao et al. as modified by Ciambrone and Edwin et al. does not explicitly show or teach the cap is formed of plastic.

Yu does teach the cap is formed from plastic (Col. 2, line 64).

With respect to claims 7, 16 and 24; the modified cap of Liao et al. / Ciambrone / Edwin et al. further modified by Yu does not explicitly teach a (*translucent*) *red* plastic.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a plastic material as taught by Yu to further modify the infrared transmissive cap of Liao et al. / Ciambrone / Edwin et al. to produce a relatively inexpensive cap that enables reliable soldering as well as provides a means of mechanical handling during production. As for the specific type of plastic being *translucent* and/or *red*, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416 (CCPA 1960).

### ***Response to Applicant's Remarks***

3. Applicant's arguments, filed 10 February 2006, with respect to the rejection(s) of claim(s) 1-25 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Edwin et al. for the intent purpose of clarifying the motive for using Ciambrone to modify Laio et al.

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**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

#### Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Girardi: Telephone number (571) 272-5924.

Monday – Thursday 7 a.m. - 5:30 p.m. (EST)

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached on (571) 272-2800 ext. 33.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VG  
Art Unit 2833  
February 27, 2006

  
THO D.TA  
PRIMARY EXAMINER